



SEQUENCE LISTING

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Auge, Jennifer Stoehr
Ohlendorf, Douglas

<120> MUTANTS OF STREPTOCOCCAL TOXIN A AND METHODS OF USE

<130> 600.346USWO

<140> US 09/308,830
<141> 1999-08-04

<150> PCT/US97/22228
<151> 1997-12-05

<150> US 60/032,930
<151> 1996-12-06

<160> 14

<170> PatentIn version 3.1

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Leu Gly Leu Thr Ile Ser Gln Glu Val Phe Ala Gln Gln Asp Pro Asp	
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Pro Ser Gln Leu His Arg Ser Ser Leu Val Lys Asn Leu Gln Asn Ile	
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tat ttt ctt tat gag ggt gac cct gtt act cac gag aat gtg aaa tct	1028
Tyr Phe Leu Tyr Glu Gly Asp Pro Val Thr His Glu Asn Val Lys Ser	
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gtt gat caa ctt tta tct cac cat tta ata tat aat gtt tca ggg cca	1076
Val Asp Gln Leu Leu Ser His His Leu Ile Tyr Asn Val Ser Gly Pro	
70 75 80	
aat tat gat aaa tta aaa act gaa ctt aag aac caa gag atg gca act	1124
Asn Tyr Asp Lys Leu Lys Thr Glu Leu Lys Asn Gln Glu Met Ala Thr	
85 90 95	
tta ttt aag gat aaa aac gtt gat att tat ggt gta gaa tat tac cat	1172
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Leu Cys Tyr Leu Cys Glu Asn Ala Glu Arg Ser Ala Cys Ile Tyr Gly	
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ggg gta aca aat cat gaa ggg aat cat tta gaa att cct aaa aag ata	1268
Gly Val Thr Asn His Glu Gly Asn His Leu Glu Ile Pro Lys Lys Ile	
135 140 145	
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Val Val Lys Val Ser Ile Asp Gly Ile Gln Ser Leu Ser Phe Asp Ile	
150 155 160	
gaa aca aat aaa aaa atg gta act gct caa gaa tta gac tat aaa gtt	1364
Glu Thr Asn Lys Lys Met Val Thr Ala Gln Glu Leu Asp Tyr Lys Val	
165 170 175	

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Arg Lys Tyr Leu Thr Asp Asn Lys Gln Leu Tyr Thr Asn Gly Pro Ser	
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Lys Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Pro Lys Asn Lys Glu Ser	
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Phe Trp Phe Asp Phe Phe Pro Glu Pro Glu Phe Thr Gln Ser Lys Tyr	
215 220 225	
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Leu Met Ile Tyr Lys Asp Asn Glu Thr Leu Asp Ser Asn Thr Ser Gln	
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Ile Glu Val Tyr Leu Thr Thr Lys	
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Asp Pro Asp Pro Ser Gln Leu His Arg Ser Ser Leu Val Lys Asn Leu
35 40 45

Gln Asn Ile Tyr Phe Leu Tyr Glu Gly Asp Pro Val Thr His Glu Asn
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Val Lys Ser Val Asp Gln Leu Leu Ser His His Leu Ile Tyr Asn Val
65 70 75 80

Ser Gly Pro Asn Tyr Asp Lys Leu Lys Thr Glu Leu Lys Asn Gln Glu

85

90

95

Met Ala Thr Leu Phe Lys Asp Lys Asn Val Asp Ile Tyr Gly Val Glu
100 105 110

Tyr Tyr His Leu Cys Tyr Leu Cys Glu Asn Ala Glu Arg Ser Ala Cys
115 120 125

Ile Tyr Gly Gly Val Thr Asn His Glu Gly Asn His Leu Glu Ile Pro
130 135 140

Lys Lys Ile Val Val Lys Val Ser Ile Asp Gly Ile Gln Ser Leu Ser
145 150 155 160

Phe Asp Ile Glu Thr Asn Lys Lys Met Val Thr Ala Gln Glu Leu Asp
165 170 175

Tyr Lys Val Arg Lys Tyr Leu Thr Asp Asn Lys Gln Leu Tyr Thr Asn
180 185 190

Gly Pro Ser Lys Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Pro Lys Asn
195 200 205

Lys Glu Ser Phe Trp Phe Asp Phe Phe Pro Glu Pro Glu Phe Thr Gln
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35 40 45

Asn Val Ser Gly Pro Asn Tyr Asp Lys Leu Lys Thr Glu Leu Lys Asn
50 55 60

Gln Glu Met Ala Thr Leu Phe Lys Asp Lys Asn Val Asp Ile Tyr Gly
65 70 75 80

Val Glu Tyr Tyr His Leu Cys Tyr Leu Cys Glu Asn Ala Glu Arg Ser
85 90 95

Ala Cys Ile Tyr Gly Gly Val Thr Asn His Glu Gly Asn His Leu Glu
100 105 110

Ile Pro Lys Lys Ile Val Val Lys Val Ser Ile Asp Gly Ile Gln Ser
115 120 125

Leu Ser Phe Asp Ile Glu Thr Asn Lys Lys Met Val Thr Ala Gln Glu
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Leu Asp Tyr Lys Val Arg Lys Tyr Leu Thr Asp Asn Lys Gln Leu Tyr
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Thr Asn Gly Pro Ser Lys Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Pro
165 170 175

Lys Asn Lys Glu Ser Phe Trp Phe Asp Phe Phe Pro Glu Pro Glu Phe
180 185 190

Thr Gln Ser Lys Tyr Leu Met Ile Tyr Lys Asp Asn Glu Thr Leu Asp
195 200 205

Ser Asn Thr Ser Gln Ile Glu Val Tyr Leu Thr Thr Lys
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